

1 **CLAIMS:**

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3 1. A method for facilitating enhanced readability of a fixed digital

4 document, the method comprising:

5 obtaining a fixed digital document;

6 paginating one or more pages of the fixed digital document into multiple

7 virtual pages;

8 identifying and locating lines of text within the one or more pages of the

9 fixed document;

10 determining whether a virtual-page boundary is coextensive with an

11 identified line of text;

12 responsive to such determining, adjusting the virtual-page boundary if the

13 boundary is coextensive with the identified line of text so that the boundary is not

14 coextensive with the identified line.

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16 2. A method as recited in claim 1 further comprising displaying a

17 virtual page of the multiple virtual pages and doing so without displaying overlap.

18

19 3. A method as recited in claim 1 further comprising displaying virtual

20 pages of the multiple virtual pages, wherein unrepeated content of multiple virtual

21 pages starts at a common spatial position on the multiple virtual pages.

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1 4. A method as recited in claim 1 further comprising displaying virtual
2 pages of the multiple virtual pages, wherein a top synthetic virtual-page margin is
3 displayed so that the content of the virtual page starts at a common spatial
4 position.

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6 5. A method as recited in claim 1, wherein the identifying and locating
7 comprises performing at least minimal OCR on content of the document to locate
8 line boundaries.

9
10 6. A method as recited in claim 1, wherein the paginating comprises
11 determining a minimum integer number of virtual pages per page of the digital
12 document while maintaining legibility, aspect ratio, and good margins.

13
14 7. A computer comprising one or more computer-readable media
15 having computer-executable instructions that, when executed by the computer,
16 perform the method as recited in claim 1.

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18 8. A computer-readable medium having computer-executable
19 instructions that, when executed by a computer, performs the method as recited in
20 claim 1.

1 **9.** A method for facilitating enhanced readability of a digital document,
2 the method comprising:

3 paginating one or more pages of a digital document into multiple virtual
4 pages;

5 placing a virtual-page boundary so that such boundary is not coextensive
6 with a line of text.

7
8 **10.** A method as recited in claim 9, wherein the digital document is a
9 fixed digital document.

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11 **11.** A method as recited in claim 9 further comprising identifying and
12 locating lines of text within the one or more pages of the digital document.

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14 **12.** A method as recited in claim 9 further comprising determining
15 whether a virtual-page boundary is coextensive with a line of text.

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17 **13.** A method as recited in claim 12 further comprising responsive to
18 such determining, adjusting the virtual-page boundary if the boundary is
19 coextensive with a line of text so that the boundary is not coextensive with the
20 line.

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22 **14.** A method as recited in claim 9 further comprising displaying a
23 virtual page of the multiple virtual pages and doing so without displaying overlap.
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1 **15.** A method as recited in claim 9 further comprising displaying virtual
2 pages of the multiple virtual pages, wherein unrepeated content of multiple virtual
3 page starts at a common spatial position on the multiple virtual page.

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5 **16.** A method as recited in claim 9, wherein the paginating comprises
6 determining a minimum integer number of virtual pages per page of the digital
7 document while maintaining legibility, aspect ratio, and good margins.

8
9 **17.** A computer comprising one or more computer-readable media
10 having computer-executable instructions that, when executed by the computer,
11 perform the method as recited in claim 9.

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13 **18.** A computer-readable medium having computer-executable
14 instructions that, when executed by a computer, performs the method as recited in
15 claim 9.

1 **19.** A method for facilitating enhanced readability of a digital
2 document, the method comprising:

3 paginating one or more pages of a digital document into multiple virtual
4 pages;

5 displaying the virtual pages of the multiple virtual pages and doing so
6 without displaying overlap.

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8 **20.** A method as recited in claim 19, wherein the digital document is a
9 fixed digital document.

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11 **21.** A method as recited in claim 19, wherein the paginating comprises
12 separating the one or more pages of the digital document into multiple virtual
13 pages without splitting lines of text of the document.

14
15 **22.** A method as recited in claim 19, wherein the paginating comprises:
16 identifying lines of text within the digital document;
17 separating the one or more pages of the digital document into multiple
18 virtual pages between lines of text.

1 **23.** A computer comprising one or more computer-readable media
2 having computer-executable instructions that, when executed by the computer,
3 perform the method as recited in claim 19.

4
5 **24.** A method as recited in claim 19, wherein the paginating comprises
6 determining a minimum integer number of virtual pages per page of the digital
7 document while maintaining legibility, aspect ratio, and good margins.

8
9 **25.** A computer-readable medium having computer-executable
10 instructions that, when executed by a computer, performs the method as recited in
11 claim 19.

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13 **26.** A method for enhancing the readability of a digital document, the
14 method comprising:

15 paginating one or more pages of a digital document into multiple virtual
16 pages;

17 displaying the virtual pages of the multiple virtual pages, wherein
18 unrepeatd content of multiple virtual page starts at a common spatial position on
19 the multiple virtual page.

20
21 **27.** A method as recited in claim 26 further comprising lowlighting
22 repeated content on a virtual page, the repeated content is content repeated from
23 another virtual page.

1 **28.** A method as recited in claim 26, wherein the paginating comprises
2 separating the one or more pages of the digital document into multiple virtual
3 pages without splitting lines of text of the document.
4

5 **29.** A method as recited in claim 26, wherein the paginating comprises:
6 identifying lines of text within the digital document;
7 separating the one or more pages of the digital document into multiple
8 virtual pages between identified lines of text.
9

10 **30.** A method as recited in claim 26, wherein the paginating comprises
11 determining a minimum integer number of virtual pages per page of the digital
12 document while maintaining legibility, aspect ratio, and good margins.
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14 **31.** A computer comprising one or more computer-readable media
15 having computer-executable instructions that, when executed by the computer,
16 perform the method as recited in claim 26.
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18 **32.** A computer-readable medium having computer-executable
19 instructions that, when executed by a computer, performs the method as recited in
20 claim 26.
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1 **33.** A method for facilitating enhanced readability of a fixed digital
2 document, the method comprising:

3 paginating one or more pages of the fixed digital document into multiple
4 virtual pages;

5 displaying one or more virtual pages of the multiple virtual pages and doing
6 so with overlap on a virtual page, wherein the overlap of one virtual page includes
7 content of the document repeated from another virtual page;

8 indicating such overlap during the displaying, wherein the content of
9 overlap is differentiated from other content.

10
11 **34.** A method as recited in claim 33, wherein the overlap is lowlighted.

12
13 **35.** A method as recited in claim 33, wherein unrepeatd content of
14 multiple virtual page starts at a common spatial position on the multiple virtual
15 page.

16
17 **36.** A method as recited in claim 33, wherein the overlap is softly
18 lowlighted.

19
20 **37.** A method as recited in claim 33, wherein the overlap is shaded.

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22 **38.** A method as recited in claim 33, wherein the overlap is "grayed."
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1 **39.** A method as recited in claim 33, wherein the paginating comprises
2 determining a minimum integer number of virtual pages per page of the digital
3 document while maintaining legibility, aspect ratio, and good margins.

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5 **40.** A computer comprising one or more computer-readable media
6 having computer-executable instructions that, when executed by the computer,
7 perform the method as recited in claim 33.

8
9 **41.** A computer-readable medium having computer-executable
10 instructions that, when executed by a computer, performs the method as recited in
11 claim 33.

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13 **42.** A method for facilitating the enhanced readability of a digital
14 document, the method comprising:

15 determining an integer number of virtual pages per page of a digital
16 document while maintaining legibility, aspect ratio, and good margins;

17 paginating, accordingly, one or more pages of the digital document into
18 multiple virtual pages.

19
20 **43.** A method as recited in claim 42, wherein the determining determines
21 the minimum integer number of virtual pages per page of the digital document.

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23 **44.** A method as recited in claim 42, wherein the digital document is a
24 fixed digital document.

1 **45.** A method as recited in claim 42 further comprising displaying one or
2 more of the virtual pages.

3 **46.** A computer-readable medium having computer-executable
4 instructions that, when executed by a computer, performs the method as recited in
5 claim 42.

6
7 **47.** A reading enhancement system, comprising:
8 a document obtainer configured to obtain a digital document;
9 a virtual paginator configured to paginate one or more pages of the digital
10 document into multiple virtual pages, the virtual pages having boundaries there
11 between;

12 a virtual-page analyzer configured to analyze the virtual page;
13 a display generator configured to generate and send the virtual pages of the
14 multiple virtual pages to a display.

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16 **48.** A system as recited in claim 47, wherein the analyzer is further
17 configured to:

18 identify and locate lines of text within the one or more pages of the digital
19 document;

20 determine whether a virtual-page boundary is coextensive with an identified
21 line of text;

22 responsive to such determining, adjust the virtual-page boundary if the
23 boundary is coextensive with the identified line of text so that the boundary is not
24 coextensive with the identified line.
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1 **49.** A system as recited in claim 47, wherein the analyzer is further
2 configured to produce lowlighted overlap, wherein the overlap of one virtual page
3 includes content of the document repeated from another virtual page.
4

5 **50.** A system as recited in claim 47, wherein the virtual paginator is
6 further configured to determine a minimum integer number of virtual pages per
7 page of the digital document while maintaining legibility, aspect ratio, and good
8 margins.
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10 **51.** A computer-readable medium having computer-executable
11 instructions that, when executed by a computer, performs the method comprising:
12 paginating one or more pages of a digital document into multiple virtual
13 pages;
14 placing a virtual-page boundary so that such boundary is not coextensive
15 with an identified line of text.
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17 **52.** A computer-readable medium having computer-executable
18 instructions that, when executed by a computer, performs the method comprising:
19 paginating one or more pages of a digital document into multiple virtual
20 pages;
21 displaying one or more virtual pages of the multiple virtual pages and doing
22 so with lowlighted overlap, wherein the overlap of one virtual page includes
23 content of the document repeated from another virtual page.
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